

Appl. No.: 10/676,860
Amdt.dated 07/12/2006
Reply to Office action of 04/20/2006

Amendments to the Claims:

1. (Currently Amended) A process for depositing a nanomolecular layer of resin on a carbon fiber comprising:
 - a. providing an aqueous solution of an organic compound contained in a non-conducting container;
 - b. connecting a direct current source to said carbon fiber;
 - c. providing a graphite rod;
 - d. combining the fiber, the aqueous solution, and the graphite rod in the non-conducting container with ~~an alkalylin speeie~~ basic substance;
 - e. Attaching one power lead of the direct current source to the graphite rod which acts as the cathode, and the other lead to the carbon fiber as the anode [[in]] to ionize the aqueous solution;
 - f. applying an electric potential from said direct current source to cause the ionized aqueous solution to flow to ~~an anodic substrate~~ said carbon fiber ~~to form~~ creating a nanomolecular layer ~~to form~~ thereon; and
 - g. rinsing any excess chemicals from said carbon fiber ~~the substrate~~ with a rinse.
2. (Currently Amended) The process as recited in claim 1 wherein said step of providing an aqueous solution further includes said aqueous solution being comprised from the group of polymers, polyamic acid, phenyl phosphinic acid, phenyl boronic acid, and or poly isobutylene alt maleic acid, dissolved in an aqueous medium.
3. (Original) The process as recited in claim 2 wherein said nanomolecular layer is characterized by a covalent bonding onto the carbon fiber.
4. (Cancelled)
5. (Currently Amended) A process for depositing a nanomolecular layer of resin on a carbon fiber comprising:
 - a. providing an aqueous solution of an inorganic compound contained in a non-conducting container;

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- b. connecting a direct current source to said carbon fiber;
 - c. providing a graphite rod;
 - d. combining the fiber, the aqueous solution, and the graphite rod in the non-conducting container with a basic substance an alkaylin specie;
 - e. Attaching one power lead of the direct current source to the graphite rod which acts as the cathode, and the other lead to the carbon fiber as the anode to ionize the aqueous solution;
 - f. applying an electric potential from said direct current source to cause the ionized aqueous solution to flow to the carbon fiber an anodic substrate to form creating a nanomolecular layer to form thereon;
- and
- g. rinsing any excess chemicals from the carbon fiber substrate with a rinse.
6. (Currently Amended) The process as recited in claim 5 wherein said step of providing an inorganic aqueous solution further includes said aqueous solution being comprised of a from the group of phenyl boronic acid, and or polysiloxane polymer[[],] dissolved in an aqueous medium.
7. (Original) The process as recited in claim 6 wherein said nanomolecular layer is characterized by a covalent bonding onto the carbon fiber.
8. (Cancelled)
9. (New) A process for depositing a nanomolecular layer of resin on a carbon fiber comprising:
connecting an anodic lead of a direct current source to a carbonaceous material;
advancing the carbonaceous material through a first bath in a continuous manner, the first bath comprising an aqueous solution of an organic compound or inorganic compound, a basic substance, and a graphite rod that is connected to a cathodic lead of the direct current source;
passing an electric current from said graphite rod to said carbonaceous material;

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electrodepositing a nanomolecular layer comprising the organic or inorganic compound on the carbonaceous material as it is being advanced through the first bath; and advancing the carbonaceous material having a nanomolecular layer through a second bath in a continuous manner, the second bath comprising a water or alkaline solution that removes excess chemicals from the nanomolecular layer.

10. (New) The process of Claim 9, wherein the carbonaceous material comprises a roll of carbon fiber.

11. (New) The process of Claim 9, wherein the carbonaceous material comprises a carbon cloth.

12. (New) The process of Claim 9, wherein the organic compound is selected from the group consisting of polyamic acid, phenyl phosphinic acid, phenyl boronic acid, and poly isobutylene alt maleic acid.

13. (New) The process of Claim 9, wherein the organic compound comprises carboxymethylcellulose.

14. (New) The process of Claim 9, wherein the second bath comprises a basic solution.

15. (New) The process of Claim 9, wherein the second bath comprises sodium hydroxide, ammonium hydroxide, or triethylamine.